

Cover Letter

07 April 2019

Electronic Delivery Via CDX

U.S. Environmental Protection Agency
Office of Pollution Prevention & Toxics
New Chemicals Program
EPA East Building, Room 4133
1201 Constitution Avenue, NW
Washington, DC 2,0004-3302

Re: TSCA Experimental Release Application of Synthetic Genomics, Inc.
Open Pond Research and Development: The green microalgal strain *Parachlorella* STR26155 engineered with green fluorescent protein (GFP) for environmental tracking

Ladies and Gentlemen:

On behalf of Synthetic Genomics, Inc., I enclose its application for authorization to conduct the outdoor, open pond R&D activities described herein with the green microalgal strain *Parachlorella* STR26155 engineered with green fluorescent protein (GFP) for environmental tracking.

This submission represents the culmination of 18 months of investigation and data collection, in consultation with EPA, to lay the foundation for efficient review of future TERAs for future outdoor, open pond algae research and development work. Extensive and flexible outdoor testing is a critical and necessary stage of development for commercial algae cultivation intended to be conducted outdoors in the future on a large scale.

The aim of this TERA and the research for which it seeks authorization in part is to establish baseline environmental conditions in and around the test facility, and to evaluate and confirm the sufficiency of control and monitoring equipment and techniques developed for this and other similar outdoor R&D programs. To facilitate this work and appropriate public consultation, we have minimized confidential business information (CBI) claims to the greatest extent possible.

We expect that these efforts, in collaboration with EPA, will establish a more predictable framework for future EPA reviews of outdoor algae R&D activities at our test facility, presumptively sufficient to permit the Agency to make a reasoned evaluation of the health and environmental effects of the microorganism under the conditions of use. Future TERAs built on the framework would allow EPA to streamline and focus its future reviews more narrowly on the relevant properties of the organism rather than the sufficiency of baseline information or control and monitoring techniques. With greater experience, EPA will need to develop a practicable decision framework for the research program TERAs anticipated by the regulation, balancing innovators' need for nimble flexibility during R&D with a reasonable and appropriate level of environmental protection consistent with TSCA. We hope you will review this TERA with these larger goals in mind.

We look forward to working with you.

Very truly yours,

David S. Hanselman, Ph.D.

SGL Senior Director, Corporate Regulatory Affairs and Quality

Phone: (858) 433-2218

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Form Approved. O.M.B. No. 2070-0012. Approval Expires 12/31/2022

EPA Biotech Form**Biotech Form Report Number**Mark (X) if anything is CBI ☐

I hereby certify to the best of my knowledge and belief that all information entered on this form is complete and accurate.

I further certify that, pursuant to 15 U.S.C. § 2613(c), for all claims for protection for any confidential information made with this submission, all information submitted to substantiate such claims is true and correct, and that it is true and correct that the person submitting the claim has:

- (i) taken reasonable measures to protect the confidentiality of the information;
- (ii) determined that the information is not required to be disclosed or otherwise made available to the public under any other Federal law;
- (iii) a reasonable basis to conclude that disclosure of the information is likely to cause substantial harm to the competitive position of the person; and
- (iv) a reasonable basis to believe that the information is not readily discoverable through reverse engineering.

Any knowing and willful misrepresentation is subject to criminal penalty pursuant to 18 U.S.C. § 1001.

I. SUBMITTER IDENTIFICATION INFORMATIONCBI ☐

First Name	David	Last Name	Hanselman		
Position	Not Applicable	Company	Synthetic Genomics, Inc.		
Mailing Address (Number & Street)	11149 North Torrey Pines Road				
City	La Jolla	State	CA	Postal Code	92037
e-mail	dhanselman@syntheticgenomics.com		Telephone (include area code)	8584332218	

Ia. JOINT SUBMITTER -- If you are submitting this notice as part of a joint submission, mark (X) ☐CBI ☐

First Name		Last Name			
Position		Company			
Mailing Address (Number & Street)					
City		State		Postal Code	
e-mail			Telephone (include area code)		

II. TECHNICAL CONTACT IDENTIFICATION INFORMATIONCBI ☐

First Name	David	Last Name	Hanselman		
Position		Company	Synthetic Genomics, Inc.		
Mailing Address (Number & Street)	11149 North Torrey Pines Road				
City	La Jolla	State	CA	Postal Code	92037
e-mail	dhanselman@syntheticgenomics.com		Telephone (include area code)	8584332218	



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Continuation Sheet

ID	TechContact1	Field	Technical Contact Information
<div>First Name: Preston</div> <div>Last Name: Fulmer</div> <div>Position: Scientist</div> <div>Company Name: Keller & Heckman LLP</div> <div>Email: fulmer@khlaw.com</div> <div>Telephone: 2024344156</div> <div>Address: 1001 G Street, N.W.</div> <div>City: Washington</div> <div>State: DC</div> <div>Postal Code: 20001</div> <div>Country: US</div>			



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NON-CBI SUBMISSION

III. TYPE OF SUBMISSION (Check One)

- ☐ MCAN (Microbial Commercial Activity Notice)
☒ TERA (TSCA Experimental Release Application)
☐ Tier I Exemption
☐ Tier II Exemption
☐ Biotech TME (Test Market Exemption)

IIIa. TS Number

M8LJ26

IV. TEXT / COMMENTSCBI ☐

Enclosed is an application for authorization to conduct the outdoor, open pond R&D activities described herein with the green microalgal strain Parachlorella STR26155 engineered with green fluorescent protein (GFP) for environmental tracking.

The scientific literature and company documents referred-to in either the main submission, or the the environment, health and safety reviews for both chlorella and parachlorella will be mailed to EPA on a CD due to the number and size of these documents.

**V. FEES CERTIFICATION**

If you are submitting a MCAN, Tier II Exemption, TERA, or Biotechnology TME, check the following Fees Certification statement that applies:



The Company named in Part I is a "small business concern" as defined under 40 CFR 700.43 and will remit the fee as specified in 40 CFR 700.45(c).



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This joint submission includes at least one Company which is a "small business concern" and at least one Company which is not a "small business concern," as defined under 40 CFR 700.43. The fee will be remitted with the joint submission. Any remaining balance due for this joint submission is to be paid by the secondary submitter(s).



The company named in Part I is submitting a sustainable futures TME. The company has graduated from EPA's Sustainable Futures program and is therefore exempt from fees for this sustainable futures TME.

I certify that to the best of my knowledge and belief:

The company named in this submission intends to manufacture, import, or process for a commercial purpose, other than in small quantities solely for research and development, the microorganism identified in this submission. All information provided in this submission is complete and truthful as of the date of submission. I am including with this submission all test data in my possession or control and a description of all other data known to or reasonably ascertainable by me as required by 40 CFR 725.160 or 725.260.



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NON-CBI SUBMISSION

LIST OF ATTACHMENTS

#	Attachment Name	Attachment Filename	Number of Pages	Associated Section Number	CBI
1	Transmittal letter	NO-CBI TERA SGI GFP-Parachlorella Transmittal	2		
2	Certification statement	No-CBI TERA SGI GFP-Parachlorella Certification	1		
3	Main document	No-CBI SGI GFP-Parachlorella STR26155 TERA Main	91		
4	Figures and tables for main document	No-CBI SGI GFP-Parachlorella STR26155 TERA Figures and	63		
5	Parachlorella SSU rRNA sequence data	No-CBI Appendix A1 SGI Parachlorella SSU rRNA	1		
6	NAS14335 sequence data	No-CBI Appendix C1 NAS14335 Sequence Data.txt	1		
7	RS1 insertion site sequence data	No-CBI Appendix C2 RS1 Insertion Site Sequence Data.txt	1		
8	sequence screening against allergen database	No-CBI Appendix D1 Results of AllergenOnline Database	2		
9	health and environmental risk assessment methodology	No-CBI Appendix I1 Health and Environmental Risk Assessment	11		
10	Strain inactivation methodology SOP	No-CBI Appendix I2 Strain Inactivation SOP.pdf	3		
11	Chlorella EH&S literature review	Buxser S. (2010) Chlorella Safety Health and Environmental (SHE)	50		
12	Parachlorella EH&S literature review	Buxser S. (2019) Parachlorella	28		
13	Excel spreadsheet supporting Buxser 2019 Parachlorella EH&S literature review.	Parachlorella SHE Literature Review Papers Identified 13-Mar-	2		
14	Algal biofuels culture scale-up process and associated worker exposures.	SGI Algal biofuels culture scale up process and associated	1		
15	Interim report including results of environmental	NO-CBI SGI TERA R-19-0001	28		
16	Revised interim report.	Amended NO-CBI SGI TERA R-19-0001 GFP-Parachlorella	28		

Mark (X) this box if the data continues on the next page.

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Continuation Sheet

ID	Field